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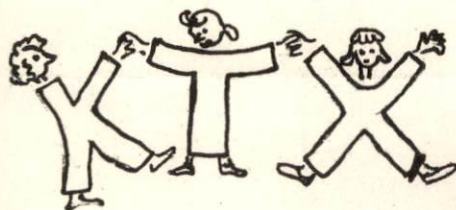
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THE COVER.....

This month's cover was drawn by Hilda Abraham from the letterheads used by various member stations.

What's Wrong with Radio?

The biggest bombshell in the brief history of broadcasting was dropped on March 7, 1946. It was a report on "The Public Service Responsibility of Broadcast Licensees", and bore the imprint of the Federal Communications Commission. In 137 pages, with meticulous footnotes and charts, it told a sorry story. While the technological end of radio had advanced beyond the wildest predictions of leaders two decades ago, the programs offered to the public had sadly deteriorated. The record of promises made in applications for licenses compared with practice was long and sordid.

One of the examples from FCC's Chamber of Horrors: Station KIEV in Glendale, California, applied for a license in order to serve the local community, "to make use of Glendale's excellent talent", to devote one-third of its time to educational programs, etc. When clocked by FCC monitors, the programs of a typical day turned out to be 143 popular records and 9 semi-classical records. There were 264 commercial announcements, and 3 minutes of announcements concerning lost and found pets. For a period of a year this station had not even broadcast world news on a regular schedule.

Radio has a responsibility to broadcast in the public interest. The number of channels available is limited by technical factors, and the use of one prevents its use by a competitor. Radio is fundamentally different from other media of communication in this respect. The existence of a newspaper does not prevent other newspapers from operating. The existence of a radio station, however, is a natural monopoly, secured by a law of nature. This is one of the reasons for its staggering monetary value. Over the years the purchase prices of radio stations have climbed steadily, often reaching many times the value of the station's physical equipment. And in 1944 the profits reported by 836 stations totaled, before taxes, nearly \$69,000,000, representing a return of 194% on their investment in tangible broadcast property at the beginning of the year. It can scarcely be argued that stations can't afford to put on better programs, and it is well to remember, when we think about the things radio brings us "free", that the investment of listeners in sets, power, batteries, and repairs is six times the investment of the broadcasting industry for a similar period of time.

The FCC report sets up four criteria of program service, not the only ones by any means, but four important considerations which are getting short shrift at present.

1. Sustaining programs should be broadcast. Certain types of programs do not lend themselves to sponsorship, but are necessary to good programming. Among these are special events and religious programs. None of us would like to hear the president of the United States brought to us by Ex-lax. In addition, sustaining programs provide an opportunity for the development of new techniques in radio, a vital part of the growth of a communications medium and one which no commercial sponsor will underwrite, and they can

serve significant minorities which are not commercially exploitable. Furthermore, the broadcaster should provide a balanced fare to the public, particularly in areas where the number of available stations is small. If all commercial programs tend toward one type (as they are apt to), it is the responsibility of the broadcaster to provide other types of programs on sustaining time.

Sustaining programs have tended to disappear from station schedules in alarming numbers, or to be relegated to hours when few people listen. The excellent sustaining features produced by networks and offered to their affiliated stations are frequently rejected in favor of commercial local programs or record shows. Columbia's "Invitation to Learning", on the date checked, was carried by 39 CBS stations, and rejected by 97. "Lands of the Free", an NBC program directed toward inter-American understanding, was carried by 24 NBC stations and refused by 114 on a typical day.

2. Live programs of local origin should be broadcast. This is particularly true in local stations. The interests of the local community should be served; issues of local importance should be brought before the public; local talent should be given an outlet, and the local station should be the voice of the community. More and more local stations have tended to become mere relay points for network programs originating in only two cities. Time not devoted to network programs is largely filled with transcribed material equally remote from the community.

3. Public issues should be discussed. A free flow of ideas is fundamental to democracy. A station which presents musical and comical entertainment has not discharged its entire responsibility to the public. It must also contribute to the information on important questions which citizens must have. The broadcasting of news, commentary, and discussion on public issues, with equal representation for all points of view, is part of the obligation the broadcaster assumes in using the people's airwaves. Many problems are involved in the attempt to give equitable representation to all sides. The broadcaster must do more than permit discussion - he must encourage it.

4. Advertising excesses should be curbed. In one example quoted by the FCC, Station WTOL Toledo, regularly broadcast 15 minutes of uninterrupted commercials from 6:30 to 6:45 PM weekdays. "A listener who has heard a program and wants to hear another has come to expect a commercial to intervene. Conversely, a listener who has heard one or more commercial announcements has a perfect right to expect a program to intervene." The National Association of Broadcasters has established a code of practice setting limits on the proportion of time devoted to advertising, but research shows that it is not enforced and contains many loopholes. "Musical Clock" programs are excepted, for instance, and on many stations they form the major part of daytime fare.

The basic principle of American radio is that the airwaves belong to the public, and are lent to broadcasters for a limited period only. Since all applications for licenses are potentially competitive if not immediately so, the public should choose between applicants the one which will serve it best. This is the function of the Federal Communications Commission. It is the representative of the public, and charged by law with the administration of the airwaves in the public interest. It is not an open court for decisions between broadcasters; it is the counsel for the public.

The programming report is a staggering account of the Commission's laxness in enforcing its responsibility. Stations which promised high-sounding

public service, and then in practice devoted their hours to advertising jingles and endless recorded music, had their licenses renewed anyway. The FCC has been so lax that its present warning is met with loud cries of "Censorship" and "Denial of free speech".

It was a bombshell which could have been foreseen. Mounting public resentment toward tasteless commercials was echoed in Webster's cartoons of "The Listening Public". The Readers Digest recruited thousands of cash contributions for a campaign to reduce the length of "plug-uglies". The public was getting fed up with commercials which traded on patriotic motives to sell hair tonic. FCC Commissioner Clifford J. Durr dissented from some of the majority decisions of the Commission. His address before the Independent Citizens Committee, "A Challenge to Radio", was reprinted in Theatre Arts Magazine for January, 1946, setting forth the issues in unmistakable relief. The handwriting was on the wall.

There is reason to believe that the leaders of the industry who now are loudest in their condemnation of the Commission knew the import and content of the report months before its publication. Why didn't the broadcasters take steps to correct the conditions which the Report exposes? What about the NAB code? Why didn't the Industry enforce it?

Perhaps because it was not profitable to do so. Perhaps because the broadcasters believed that by campaigning on the phony issue of free speech they could win even greater freedom from popular control. Broadcasting Magazine for May 13, 1946, suggests that legislation to make broadcast licenses permanent will be introduced in congress before this July. Such a law would create the most powerful monopoly in history, secured in perpetuity by natural law, responsible only to God and Mammon, and wielding untested power over the mind of man. Remember the invasion from Mars!

Broadcasters have begun to believe that the air is theirs by right, that the public is to be regarded only as a potential market for toothpaste, and that anything which will sell goods is good radio. In fact this creed has been expressly stated by advertising leaders. Over the years broadcasters have had less and less to do with the programs they broadcast. The control has been transferred to the advertising agencies. Thirty-eight percent of CBS business in 1944 was handled by four advertising agencies. One advertiser, Proctor and Gamble, is reputed to have spent \$22,000,000 on radio advertising in 1944. This sum purchased time equal to the entire broadcast schedule of 18 stations, and represents enough money to operate educational station WOI at Iowa State College for 700 years on its present budget.

Free speech has two participants. Freedom to speak is not enough; there must also be freedom to hear. Broadcasters want freedom to use the air without control. What about the freedom to be entertained without being exhorted to "rush right out and buy some", the freedom to hear uninterrupted music, the freedom to be informed on public issues, the freedom to hear programs we want even if they don't make us rush right out and buy? Government censorship is less to be feared than censorship by the advertiser, by the policy "never to offend a single listener", which not too long ago took Alexander Woolcott off the air because he criticised Hitler and Mussolini. Could Norman Corwin's "On a Note of Triumph" have been broadcast on sponsored time?

The question of Free Speech is the industry's cry of "wolf". The American Civil Liberties Union, long-standing opponent of censorship, has supported the Commission and resoundingly denied that any question of free speech is involved.

The other wing of the industry battle line is the assertion that the programs now being broadcast are the best possible, that they are what the public wants, and that the FCC is attempting to impose "high brow" standards on the unwilling public. Audience surveys are quoted in support of the position that present program service is acceptable. It is not reasonable to expect an audience to demand programs which it has never had an opportunity to hear, and present sponsors and agencies tend to stifle experimentation which would lead to the development of new types of programs. Only when they have had a trial can new ideas recruit public demand. The non-commercial stations operated by the Armed Forces Radio Service are an example. Discussion programs on topics of importance to this audience formed a part of the schedule. A representative sample of enlisted men in Europe showed that 70% of those who had heard discussions on AFRS wanted to hear more, while only 21% of the total group said they were interested in discussions.

The fact that 70% of college students polled by IBS were dissatisfied with present radio fare is itself significant. College students are a minority but, at least potentially, they are an important part of the population. Radio does not serve minorities, as the report points out, because it often is not profitable to do so. Often it does not even serve the majority. In the morning, when all networks are devoted to soap operas, 76% of the people who are at home and might listen, have their radios turned off altogether. The advertisers broadcast soaps not because they public likes them, but because the relatively small number of people who do listen, listen faithfully, and buy lots of soap. Besides, soap operas are cheap to produce.

"The best radio program is the one that sells the most goods, not necessarily the one that holds the highest Hooper or Crossley rating." The words are those of Mr. Duane Jones, head of a large agency. Whom does radio serve?

It is high time that radio came of age. It must either police itself in the public interest or submit to control from outside. The promise of FM, with possibilities of a greatly increased number of stations, must not evaporate like a campaign pledge into a plethora of new voices playing the same old tune.

Not only does present broadcasting cheat the listener, but it cheats the creative workers of radio - the writers, actors, directors, and commentators. Articulate voices have repeatedly spoken out against the intellectual straight-jacket of over-commercialism. Norman Corwin and Arch Oboler speak out in public. Many others admit privately that they have little respect for the quality of the work they turn out. A recent letter in Broadcasting Magazine favoring the FCC report was labeled, "Name Withheld - It's hard enough to make a living". Those of us who plan to make careers in the radio field must realize that on the outcome of this controversy depends our chance for a creative future, or merely a chance "to make a living".

Dave Linton

OPERATION OF STATION PROGRAM AND PRODUCTION DEPARTMENTS

No matter how good a station's technical facilities, how complete its coverage, or how large its staff, that station will have little value to its audience unless it can offer that audience a good, well-rounded program schedule for their enjoyment. The Program Manager of a station should know his audience's tastes, and provide them with the programs they want; he should live up to his responsibility as a purveyor of information by providing interesting programs on all subjects; and he should please his audience's sensibilities by providing well-written programs in good taste. But good programs will have few listeners unless they are well produced; the Production Director of the station should have a sense of showmanship, and should see that programs are produced with adequate rehearsal, competent performers, and accurate timing. If the programs of the station are worthwhile, and their preparation and production is well coordinated, the station will indeed be serving the audience well.

Jobs of the Program Manager

The work of the Program Manager falls into three categories. First, he must schedule all kinds of programs, at the times the audience most likes them, including diverse and informative shows in that schedule. Secondly, he must have the material for his shows written, prepared on time for the shows, and checked for good taste. Finally, he should be constantly alert to find new program ideas for the audience, using the results of surveys as well as suggestions and ideas which he hears.

Program schedule: The first job of the Program Manager is to plan the schedule of programs. A block schedule is the usual method of doing this; i.e., at the start of each semester or year, the Program Manager takes his basic schedule, showing the days and hours of broadcasting, and allocates the programs to specific time periods. The habits of the audience should be considered; commercial programs should be given good listening times, and other regular programs scheduled at the best listening times for their types. Since the station should not try to compete with the national networks, it should not schedule programs that might compete--if the station has a student variety show, it should be scheduled at some time when there are no other variety shows on the air, rather than when Bob Hope is broadcasting; good though your show may be, the majority prefers Bob Hope. The program that should be scheduled at that time is one which the people who don't listen to Bob Hope would want to hear--classical music, or a discussion show--something for the rest of the audience. Thus the station will be performing a service unavailable elsewhere. Another point to keep in mind is that, if your programs are network shows it is better to have one good copy than poor imitations. If the copy submitted to you is not top-notch, forget it until it is.

Added word of warning: it is easy for a Program Manager to plan a complete schedule of record shows, classical and popular, occasionally varied by news shows, and interspersed regularly by spot announcements. This type of schedule makes money for the station but has inherent faults: foremost is monopoly. Such a schedule may draw a regular "audience" which listens to the records for a background; however, it will lose those potential

listeners who would listen to different kinds of shows, as well as scaring away potential staff members who would write and produce and participate in the programs of a varied schedule. A good station must offer an outlet for the talents of all interested students, not just salesmen and disc jockeys.

Types of programs for diversity: in the recent book by Charles Siepman, "Radio's Second Chance," the following five types of programs are listed as essential to reach the whole audience:

1. News programs, with interpretation and comment
2. Varied entertainment, including drama
3. Programs on national and international issues, affecting democratic processes.
4. Programs for special sections of the audience: women, fraternities, etc.
5. Programs for "cultural" minorities--lovers of music and literature, students interested in science, aviation, etc.

There need not be, as pointed out in many places, a difference between commercial and sustaining shows in presenting such programs; neither should it be taken for granted that a program fits into only one of these categories, as a program on an international issue may have a dramatic or news format to make the presentation more effective and interesting to the listener. The groups in which the station's programs usually fall are these:

1. Variety shows: campus comedians and musicians
2. Music: recorded and live popular and classical music; broadcasts of concerts of college glee club and orchestra; student jazz groups; student singers; excerpts from college revues, etc.
3. Drama: student-written and general radio dramatic shows
4. Sports: summaries, news, commentaries, and on-the-spot broadcasts of games by the college teams.
5. News: reports and commentaries on world and campus news.
6. Special events: interviews and reports on unusual campus happenings.
7. Public service: discussions or campus and world problems, and the publicizing of worthy campaigns.
8. Quiz shows, and audience participation shows like "Radio Bingo."

Preparation of programs for broadcasting: To have his program schedule in proper order and thoroughly prepared for broadcasting, the Program Manager must keep three points in mind: 1). He must be aware of the types of programs not included in his schedule as it stands, or which are needed, and plan to include such programs; 2). He must see that all programs have prepared scripts, assign these to the writers, and see that they are prepared on time; 3). He must supervise the editing of all scripts, to see that the material is in good taste and not poorly written; he should also check to see that local commercials are not offensive, and that all matter complies with the codes and station policy.

New program ideas are constantly available, from the suggestions and gripes heard from the audience, from obvious changes of interest on the part of the student body, and from comments and program preferences indicated on surveys taken by or for the station. Many times the existence of a new organization on the campus, or the revival of interest in an old one, may give ideas for programs; for instance, a station can do a great service by giving time to the student veteran's organizations to use in informing its members of current problems, while at the same time keeping the campus aware of the viewpoint of these veteran's groups. The station at Brown at one time made a practice of broadcasting an all-request record show at 11 in the evening, when all of the local stations broadcast news programs, which were not popular with the audience. Many of the suggestions and ideas that will come to the Program Manager will need germination to bear fruit; the wise Program Manager will jot these down, add details as they occur, and finally examine the whole idea and discuss it with the other members of his department before presenting it as a program.

A major complaint of most Program Managers is a sad lack of competent writers on the staff, with the consequent lack of quality in programs built on a good idea. In many cases, a small number of writers do all of the work for the station, with the result that their total output is poor, or their studios suffer, or too many programs are ad-lib rather than performed from scripts. The ideal situation occurs when each writer prepares only one or two top-notch programs a week, while apprentices take care of station breaks and other continuity. The simplest way to obtain writers is to have all interested students submit scripts; often, however, writers must be "scared up" by soliciting English classes and other groups where students who hanker to write can be found. This job will succeed if the Program Manager is ingenuous in searching for talent.

No writer should be taken on the staff unless he submits material prepared for radio. A good many would-be radio writers need elementary guidance in the importance of writing for the ear instead of for the eye; they should be encouraged to listen to radio shows before attempting radio copy, and to read their material aloud before submitting it. There are several books on the market which give excellent tips on writing for radio, and all it involves; members of the station's writing staff should be required to read at least one. The best are these: "Practical Radio Writing," by Katherine Seymour and John T. W. Martin; "Radio Writing," by Max Wylie; "Handbook of Radio Writing," by Erik Barnouw; and "How to Write for Radio," by James Whipple. These books are available in most libraries. In addition, Albert Crews, author of the excellent "Radio Production Directing," has written a volume for writers entitled "Professional Radio Writing," to be published this July; it will probably be the most complete book in the field.

In the preparation of classical music shows, especially when the station carries more than one series of such shows, it is wise to list the entire schedule of selections at the beginning of each semester, in order to avoid needless duplication. The Music Director of the station should be in charge of this advance preparation; if a classical music program is run as a supplement to a music course, this information should be obtained as early as possible, before other programs are prepared.

In addition to checking all scripts for the quality of the writing, the Program Manager will also have to check for good taste. Offenses occur rarely; it is better to check carefully than to take a chance on irritating the audience. Most offenses to good taste are listed and forbidden in the IBS Program Code; others will depend on the mores of the particular college and the current trend of student opinion.

Additional duties of the Program Manager: In addition to the jobs listed above, there are other details which the Program Manager should not overlook. In the first place, he should not underestimate the value of transcriptions in his program schedule. A schedule filled with transcriptions is just as dull and uncondusive to original work on the part of the station staff as a schedule of just records and spots; on the other hand, there are many transcription series which have more expensive productions than a campus station can manage, which fit into the station's program scheme. Transcriptions are excellent aids in rounding out a well-balanced schedule, especially in doing programs of a public service nature. Then, too, it is wise to keep a few one-time transcriptions which are not "dated" on hand; the schedule will thus not fall apart if the staff falls victim to some epidemic.

The Program Manager should supervise the keeping of complete files of scripts, production reports, logs, and program schedules. The last three should be filed in chronological order; scripts are best filed alphabetically by the title

of the program, and then chronologically under the title. Much confusion is saved if only current material is kept in the active file, and old scripts and records kept separately—convenient for reference, but so arranged that there will be no confusion with current material.

The Program Manager should see that the station's program log is kept accurately. Whether the announcer or control man is responsible for the entry, the Program Manager should see that whoever does the recording enters all programs, including spot announcements and station breaks, with the exact time of start, and the name of the sponsor. The program log is the original and only record of commercial broadcasts, and so is used as the basis for bills and affidavits. Program logs should be signed, and checked within a day by the Program Manager so that all omissions and errors can be fixed as soon as possible.

Some stations prefer to keep production reports to replace or supplement program logs. If the production report replaces the program log, care should be taken to enter all spots and station breaks. The production report gives more detail than most program logs, listing the name of the writer and producer of each show, the studio engineer, and all performers; titles of all musical pieces and the times of the start of separate portions of the program are listed on these production forms as well as the notation of the time of the start and end of the show, and the signature of the producer.

The Program Manager must be a good organizer. He must be able to arrange for each program and to schedule it; to supervise the writing of the shows; and to check the material for each show so that the producers will receive fully prepared material and present as excellent a show as good preparation can provide.

Jobs of the Production Director (the Production Director may be a station executive with his own department, or the work involved may be under program department supervision).

The Production Director of a station and his staff--the producers of the programs, the actors, announcers, and musicians--take over the programs of the station where the Program Manager leaves off; that is, the production department puts the material which has been prepared and scheduled on the air, and supplies the requisite personnel. The Production Director is responsible for getting the staff to put the programs on the air, scheduling them for the right shows, seeing that material--records and scripts--are in the proper hands for each program, rehearsing the shows, timing them to go on and off when scheduled, and generally instilling smoothness and showmanship into all programs by coordinating the efforts of the staff and providing the necessary training.

Staffs for programs: scheduling

One of the primary jobs of the Production Director is to secure and schedule the staffs for all programs. Announcers, except for special programs, are usually scheduled for definite periods of time; i.e., two hour stretches of staff work on specific days each week. The Production Director should have records of the time schedules of all members of his staff, so that he can quickly substitute in cases of emergencies. Staffing other programs will depend on their type; in some cases, such as variety or musical shows, the production is usually built around specific people, who will normally be on the show. In other cases, auditions or some review of qualifications is held, so that the program is appropriately cast. The Production Director should keep records of performers with special capabilities, so that he can cast any

show, or make proper substitutions, with a minimum of difficulty. The writer-producer of special shows will often take the responsibility for getting his own staff, and take care of necessary substitutions.

Jobs of individual program producers: the producer for the individual show is responsible for seeing that the show goes on the air properly. He must obtain copies of the script from the Production Director and distribute them to the performers and engineer in charge; he must rehearse the show, if required; he must obtain records for the show, if needed; he must make sure that the show goes on and off the air on time; and he must see that the file copy of the script as performed, plus the production report (if this is kept instead of or supplementary to the program log) is filed; and finally, he must see that all records and other equipment used are returned to the proper place at the end of the show.

In the cases of simple productions--record shows, newscasts, and the like--the announcer-master of ceremonies can easily handle all of the production work, as well as his announcing chores. In many other cases the announcer will double as the producer. The more complicated the show becomes, however, the more urgent it is to have a different person do the production, taking care of the timing and smoothness of the show, leaving the announcer free to give his best to announcing only.

Rehearsals are necessary for a smooth, well-timed program. Shows with a large cast, or with complicated formats, must be rehearsed intensively, so that there is no confusion on the part of the cast, and so that the program may be accurately timed, and excess material cut. This rehearsal should be complete; the whole cast may rehearse together a certain amount of time, and individual portions of the show rehearsed more intensively until there are no hitches. The final dress rehearsal, with program timings, should take place at least an hour before air time. This gives the cast adequate warming up not diffused by time before the show, and saves the sense of rushing which occurs if the rehearsal takes place just before airtime. Such an arrangement also gives the producer a chance to inform the cast of last-minute changes, and to smooth any rough portions of the show.

The program producer is also responsible for casting his shows. His announcer may be regularly scheduled for the time, or the show may have a special announcer. The producer must audition performers for each show, or select them from among those he knows have the qualifications he wants.

There are several excellent text-books on production, giving full details on all aspects of the job. They are: "The Production and Direction of Radio Programs," by John S. Carlile; "Radio Directing," by Earle McGill; and "Radio Production Directing," by Albert R. Crews.

Training performers: the Production Director of the station is usually responsible for supervising the training of all performers. Performers must be trained in good radio speaking, and in the manner of delivery which best suits radio work. In any case, the Production Director should see that no performer ever goes on the air without training in mke techniques, and he should see that this training is thorough; special attention should be paid to the announcers, as they are the most regular contact between the station and its audience.

Personnel for Program and Production Departments: between them, the Program and Production Departments will have the largest number of the station staff under their direction. It is essential that the Program Manager and Production Director be good administrators, and have lively imaginations. With the aid of assistants, these two will have to supervise the regular workers--writers and regularly scheduled announcers--and to find performers for other shows. All the material which goes on the air, and all the people responsible for it, must be carefully supervised, so the the preparation of the programs and their performance is as good as possible.

German Wired-Wireless

by

George Abraham, Chairman, Executive Committee

During the past two decades wired-wireless has been used extensively by power companies in this country and abroad for the remote switching of loads at substations and for communication over power mains and telephone lines. In order to increase the efficiency of transmission and to minimize radiation, carrier frequencies below 80 kc have been used. IBS campus radio stations on the other hand employ channels on the broadcast band so as to insure reception with standard receivers. At broadcast frequencies the efficiency of transmission is considerably less and the radiation greater for a given configuration and carrier power.

In England electrical energy is transmitted over the national power grid at voltages from 33 to 132 kv. Since the grid is government operated it has been possible to employ carrier current transmission between remote points in the grid. Frequencies employed were below 100 kc.

During the war a German wired radio (Drahtfunk) system was used over government owned telephone lines to provide communication and entertainment to the people throughout most of the country. Drahtfunk transmissions were sent simultaneously at frequencies of 150, 210, and/or 250 kc. Audio programs were sent to "control centrals" where the wired-radio transmitters were modulated. R-F signals amplified by broad band amplifiers were relayed to "distribution stations" which served as repeaters in various cities and provided service to the subscribers.

Early in 1945 the Ninth U.S. Army captured a complete Drahtfunk equipment in the telephone building near Aachen, Germany. The equipment is described by the War Department in report #EE15 9-4 which has recently been declassified. Seventeen towns were served by this regional system. The equipment was manufactured by the Siemens-Halske, Lorenz, Tekade, and A.E.G. companies. Audio input received from Cologne modulated the transmitters (150-250 kc) through input transformers. The transmitter signal is applied to the input of a control amplifier through a transformer to a phase shifting network incorporated into an inverse feedback circuit. The amplifier consists of two pentode and one tetrode stages operating as Class A amplifiers. The gain of the amplifier is approximately 34 db. with fairly constant bandwidth from 100 to 600 kc. A preset L-C network to the input pentode maintains a broad band width by introducing frequency compensation. The output of the control amplifier is fed into a class A broadband amplifier (100-600 kc). This is required since at least three signals are sent out simultaneously. The P.A. gain is approximately 32 db. at an output power of 8 watts. Each power amplifier is capable of supplying approximately 150 subscribers. Where necessary booster amplifiers were employed to provide additional local coverage. The control and power amplifiers are rated at 350 ma. and one ampere respectively at an input potential of 230 volts.

Low pass filters are employed at the subscriber's outlet. Their function is to keep the Drahtfunk off the telephone exchange. In this way a non-Drahtfunk subscriber's instrument is not affected by r-f during normal telephone service. A 300 kc. filter is installed at the P.A. amplifier switch panel to cut off undesirable frequencies above 300 kc. This filter is designed to increase the amplitude of the signal near 250 kc. This is required since the line losses are

greater at 250 kc than at 150 kc.

The output power of the transmitter is of the order of several milliwatts (i.e., 50 millivolts into a 150 ohm load). Since in local distribution the power employed is considerably less than that used by IBS wired-radio stations, repeater amplifiers are needed. As the distance between the stations is small, low powered amplifiers were employed to raise the signal level where needed. This called for units which were mass produced at low cost, and resulted in many mechanical and electrical defects.

Each receiver is coupled to the line through a subscriber's junction box. The box consists of a filter and matching network. The signal level on the lines was 250 microvolts at the subscriber's junction box. The input to the receiver may be switched from line-line to antenna-ground, making possible two types of reception.

This method of carrier current coverage via telephone lines has the advantage that with proper choice of frequency, radiation is kept low and wide areas may be covered by direct transmission. Disadvantages involve multiplicity of equipment and extensive installation and servicing problems.

* * * * *

I.B.S. Discussion at Institute for Education by Radio

This year the Institute for Education by Radio included a round-table discussion on campus radio stations, under the chairmanship of David Linton, Program Manager of IBS. The Institute, which met in Columbus, Ohio, May 3 through 6, brought together some 1500 educators, radio executives, and government officials. Numerous colleges interested in radio were represented, as well as several member stations.

The discussion on Campus radio took place on Monday morning, May 6, with a panel composed of:

Judith Waller, Director of Public Service for the Central Division of NBC;
F. Page Boyer, Instructor in Radio and Manager of Station KTX, Stephens College, Columbia, Missouri;
R. R. Lowdermilk, U. S. Office of Education and Federal Radio Education Committee;
Ann Pike, formerly Program Director of WSRN, Swarthmore, and now at WOSU, Ohio State University;
Paul Wagner, Instructor in Journalism, Ohio University;
John Pessolano, former Music and Program Director at WSRN.

The discussion covered the following six topics, interspersed with questions and comments from the floor:

How Campus Wired Radio Stations Operate;
Special Interest Broadcasting to Students, including presentation of the preliminary results of the IBS survey;
Values of Campus Confined Systems in Training Broadcasters;
The Exchange of Material Among Student Broadcasters;
The Role of an Intercollegiate Association;
National and International Possibilities in Cooperation with other Educational services.

CODING AND ANALYSIS OF THE I.B.S. SURVEY

- On the night of April 24 a student interviewer at Antioch College asked some questions about radio listening habits and preferences to several students in a dormitory there. The next morning all of the surveys taken at Antioch were sent to the New York Office by Air Express; within a week these surveys were coded, and the results included in a report made at the meeting of the Institute for Education by Radio at Columbus, Ohio, on May 6.

You may be interested to know what happens to these interview blanks. As soon as they are received in New York they are stamped with the name and code number of the college, and are numbered serially. All the information contained in the interview is translated into a numerical code, with numbers from 1 to 12 in each of 80 boxes on a form prepared for that purpose (see B). In "free answers" (where the respondent uses his own words) the coder decides which of several pre-determined categories the answer belongs in. Then the information is recorded in the form of rectangular holes punched in the 80 columns of a special card. (see C). Each of the 80 columns has positions for 12 holes, corresponding to answers to the questions.

Hollerith machines count and sort these cards at the rate of about 500 per minute. The total number of people giving each answer is indicated in a speedometer type dial, and the machine may be set to sort the cards into any desired grouping. Thus it is possible to sort out the veterans, for example, and determine their program preferences as they differ from the preferences of non-veterans. There is almost no limit to the variety of useful information which can be obtained in this way.

B. Sample of code sheet.

	8
15	
	9
8	
	10
1	
	11
56789	
	12

C. Sample punched card.

8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

A. Sample section from survey questionnaire.

4. Did you listen to the radio at all yesterday? Yes X No

IF YES: Could you tell me exactly what times during yesterday you listened?

INTERVIEWER: CHECK EACH TIME PERIOD DURING WHICH RESPONDENT LISTENED AT ALL.

A.M. 6:00-6:30
 6:30-7:00
 7:00-7:30
 7:30-8:00
 8:00-8:30
 8:30-9:00
 9:00-9:30
 9:30-10:00
 10:00-10:30
 10:30-11:00
 11:00-11:30
 11:30-12:00 X

P.M. 12:00-12:30 X
 12:30-1:00
 1:00-1:30
 1:30-2:00
 2:00-2:30
 2:30-3:00
 3:00-3:30
 3:30-4:00
 4:00-4:30
 4:30-5:00
 5:00-5:30
 5:30-6:00

P.M. 6:00-6:30
 6:30-7:00
 7:00-7:30
 7:30-8:00
 8:00-8:30 X
 8:30-9:00 X
 9:00-9:30 X
 9:30-10:00 X
 10:00-10:30 X
 10:30-11:00
 11:00-11:30
 11:30-12:00
 A.M. 12:00-12:30
 12:30-1:00
 1:00-1:30

YESTERDAY WAS: Sun Mon X Tues

Wed Thu Fri Sat

Other times:

Today's Topics

Philadelphia Evening Bulletin Backs Midat

The Philadelphia Evening Bulletin, through its radio station WPEN, is underwriting the operation of the Middle Atlantic Network by providing the network lines which link the stations at Haverford, Bryn Mawr, Swarthmore, and the University of Pennsylvania. WPEN has installed a permanent line to WXPB on the University of Pennsylvania campus and given them permission to rebroadcast any programs of WPEN. This includes hourly news reports on the hour, which are now being rebroadcast.

Starting May 6, WPEN furnished lines connecting the other stations of the group for one hour each night. Five minutes of news from WPEN will open the hour, followed by a varied schedule of outstanding programs contributed by the four stations. The operations this spring are regarded as a test, leading to an expanded schedule next fall when the colleges resume.

Summertime in Radio--courses and jobs

There has been much interest and some inquiries about summer radio courses and jobs. Among the institutions which offer radio courses are those listed below; interested students should write the schools for further details.

Indiana State Teacher's College, Terre Haute, Indiana
Michigan State College, East Lansing, Michigan
University of New Hampshire, Durham, New Hampshire
Texas College of Mines and Metallurgy, El Paso, Texas
New York University, Washington Square College, New York City
North Texas State Teacher's College, Denton, Texas
Washington State College, Pullman, Washington
Station WTOP, Washington, D. C.
University of Wisconsin, Madison, Wisconsin
Queen's University, Kingston, Ontario
Station WLW, Cincinnati, Ohio
NBC Institutes:

Northwestern University, Evanston, Illinois
University of California at Los Angeles
Station KPO, San Francisco, California (Stanford University)

Most of these courses start shortly after the 15th of June; enrollments are almost full, so inquiry and applications should be sent immediately.

Summer jobs in radio are even scarcer than permanent jobs because broadcasters are reluctant to hire inexperienced people for short periods. Some jobs are available in smaller local stations, especially away from the big cities, perhaps on a volunteer basis. New York City's municipal station, WNYC, will accept a few volunteers over the summer. WNYC's alumni fill many positions in the radio industry. IBS will be able to use a few volunteers during the summer on administrative work which is good experience for those interested in radio. Other New York stations will not accept volunteers.

From the Colleges

Princeton--station WPRU has had a ticker from Trans-Radio Press installed in its studios. Regular news shows are broadcast; flashes are put on the air as soon as received.

Mary Washington--the staff of WMWC has almost finished one year of broadcasting. The staff for next year's operations was recently elected, and includes the following students: Station Manager, Lois Anderson; Board of Directors, Ruth Meyer, Mary Jane Lindenburger, Gurdine Link, and Norvell Millner. Among the outstanding programs of the past year have been "Musical Masterpieces," an hour of classical and semi-classical music; "Campus Hit Parade," with a resume of the most popular campus hits; "Campus Personality," a game to guess the name of a campus character from description; "Nations of the World," with varied information on different countries of this world; and "We the Peep Hole," a campus gossip show.

Williams-- the staff of WMS has remodeled the studio of the station, sound-proofing and repainting. Plans are being made to buy new equipment to insure more efficient operation for the station, and to equip a new, enlarged studio, as well as replacing some old lines. Business has increased greatly locally, so that the station's accounts multiplied five times despite the loss of some national accounts. New shows have been added to the schedule, including the Christian Association's round-tables and a weekly quiz show. The station has carried some broadcasts of UNO proceedings, obtained on transcription from IBS.

Brown--"Station Break," the weekly program schedule of WBRU, reports that final tests of the new transmitter are now underway, and that the station's coverage of the Brown and Pembroke campuses is being improved. Outstanding success this term is "Radio Jackpot," a bingo game played over the air, with prizes donated by local merchants.

Radcliffe--elections for the 1946-47 staff of WRAD were held recently. The following officers were selected to head the station in the fall term:

President.....	Eleanor Reed
Technical Director.....	Eve Wasserberger
Program Director.....	Norma Jean Micheals
Production Director.....	Barbara Denison
Business Manager.....	Mary O'Donnell
Secretary.....	Nina Mangravite
Publicity.....	Pota Lewis

The quality of the station's productions has been improved by the installation of a new program mixer and amplifier, built and installed by the Crimson Network (WHCN).

Pennsylvania--on April 22nd, station WXPB doubled its broadcasting hours, so that it is now on the air from 6 to 10 P.M. A line has been installed to the station from Philadelphia station WPEN, and regular news broadcasts and programs of general interest are broadcast to the campus. Penn began operating as a member of the Midat network on May 6.

Union--Jim Oglesby has been elected Station Manager to replace Tom Baker, returning to active duty with the Marines. Changes in the program schedule and broadcasting hours have been made as a result of the IBS survey.

Yale—elections were recently held to appoint WYBC officers until January, 1947. These will be: William Lamborn, Chairman; Lynn Miller, Vice Chairman; Broadus Johnson, Program Director; James Damon, Business Manager; Fraser Morse, Technical Director; Daniel P. Weinig, Public Relations.

Russell Sage—the college is making plans for a new auditorium, which will include studios and offices for the radio station.

Bucknell—station WBRG has moved into its new quarters, a building turned over to them by the University. Repairs, a furnace, and painting have all been supplied by the University. Studio, control room, and announcing booth occupy the cellar; upstairs is an office and technical workshop. The improved quarters have resulted in better programs including the "Bucknell Theater of the Air," and many special features.

Antioch—the radio group here, which recently joined IBS as a Trial group, has taken the survey on their campus, and is using it as the basis for the program schedule. The station should be in operation by the fall.

Alabama—Jane Nyvall, faculty advisor to BRN, attended the Institute for Education by Radio, taking part in the campus radio discussion.

Brigham Young—station KBYU has applied for full Membership in IBS.

Cornell—a model UNO session was run at the University to acquaint the students with the functions of that important organization. CRG broadcast all sessions.

Haverford—a recent fire in one of the dormitories here roused Fred Rhue, WHAV's Chief Production Engineer, and Dick Rivers, the Technical Director, at 6 A.M. Both lost their personal possessions, while the station's diagrams went up in smoke in Rivers' room.

McGill—the McGill Radio Broadcasting Committee recently joined IBS in Trial status. The station equipment will be built over the summer; broadcasts will start in the fall. McGill is the first Canadian Trial member of IBS.

Miami University—another recent Trial group is WMU, in Oxford, Ohio. Harry Williams and Hortense Moore, faculty advisors for the station, attended the panel discussion on campus radio at the Institute for Education by Radio.

College of the Pacific—has filed application with the FCC for an educational FM station. If granted, this will be the first FM station affiliated with IBS. KAEO, the campus station, now under construction, will share studio space with the FM station; studios will be temporarily located in a Quonset hut.

South Carolina—the Carolina Broadcasting Company has been chartered to operate a "non-profit campus station." The officers are: Sid Wise, President; Dick Newell, Vice President; Virginia Raysor, Secretary; and Victor Barrett, Treasurer. These people will also serve as officers of the station, as Station Manager, Program Manager, Secretary, and Business Manager, respectively. The station plans to be on the air June 1, with studios located in old slave quarters. Funds for the immediate purchase of equipment were obtained by a loan; the station is conducting a drive to collect ten cents from each student, which will pay for the cost of the original installation.